

USSR

BLIZNYUK, N. K., et al., USSR Authors; Certificate No 250134

yield 89.2%, melting point 225-6 (alcohol-acetone). Analogously obtained are the following I (enumerated are R = R', X = Y% yield melting point in °C): 4-ClC<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>, 4-ClC<sub>6</sub>H<sub>4</sub>, 96.5, 235-6; 2,4-Cl<sub>2</sub>C<sub>6</sub>H<sub>3</sub>CH<sub>2</sub>, 2,4-Cl<sub>2</sub>C<sub>6</sub>H<sub>3</sub>, 58, 140-142; 2-ClC<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>, 2-ClC<sub>6</sub>H<sub>4</sub>, ~100, 2. Analogously obtained are the following I (enumerated are R, R', X = Y% yield, melting point in °C): Ph, 4-ClC<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>, 4-ClC<sub>6</sub>H<sub>4</sub>, ~100, --; Ph, PhCH<sub>2</sub>, Ph, ~100, 128-30 (acetone); Ph, 2,4-Cl<sub>2</sub>C<sub>6</sub>H<sub>3</sub>CH<sub>2</sub>, 2,4-Cl<sub>2</sub>C<sub>6</sub>H<sub>3</sub>, ~100, 160-2 (alcohol-acetone); 4-MeC<sub>6</sub>H<sub>4</sub>, PhCH<sub>2</sub>, Ph, ~100, 85-7; C<sub>9</sub>H<sub>19</sub>, PhCH<sub>2</sub>, Ph, ~100; Ph, 4-ClC<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>, Ph, ~100, 115-6.

2/2

USSR

UDC 547.341.26'118.07

~~BLIZNYUK, N. K.~~ KVASHA, Z. N., and MADZHARA, G. A., All-Union Scientific Research Institute of Phytopathology

"A Method of Making Trithiophosphonates"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, Jan 71, Author's Certificate No 289096, division C, filed 11 Dec 69, published 8 Dec 70, pp 77-78

Translation: This Author's Certificate introduces a method of making trithiophosphonates by interacting thiol with a thiophosphonic acid derivative in the presence of heat with subsequent isolation of the goal product by conventional methods. As a distinguishing feature of the patent, the method is simplified and a greater variety of products is obtained by using dithiophosphonic acid anhydride as the thiophosphonic acid derivative. The patent also covers a modification of this method distinguished by the fact that heating is done to 10-220°C.

1/1

USSR

UDC 547.341.07

BLIZNYUK, N. K., KVASHA, Z. N., MADZHARA, G. A., and MARKOVA, L. I., All-Union Scientific Research Institute of Phytopathology

"A Method of Making Aryl- or Benzylthiophosphonic Acid Dichlorides"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 11, Apr 71, Author's Certificate No 298593, division C, filed 30 Mar 70, published 16 Mar 71, p 88

Translation: This Author's Certificate introduces: 1. A method of making aryl- or benzylthiophosphonic acid dichlorides by treating phosphorus trichloride with an aryl- or benzylthiol in the presence of heat, and isolating the goal product by conventional methods. As a distinguishing feature of the patent, the method is simplified and the yield of the goal product is increased by using an excess of phosphorus trichloride. 2. A modification of this method distinguished by the fact that the thiols and phosphorus trichloride are used in molar ratios of 1:3-5 respectively. 3. A modification of this method distinguished by the fact that the mixture of reagents is preboiled at atmospheric pressure and then heated in an autoclave at 250-320°C for 2-3 hours.

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USSR

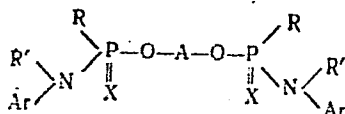
UDC 547.341.26'118.07

BLIZNYUK, N. K., LEVSKAYA, G. S., MATYUKHINA, Ye. N., and KVASHA, Z. N.,  
All-Union Scientific Research Institute of Phytopathology

"A Method of Making Bisanilido Phosphonates or Bisanilidothiophosphonates"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
No 11, Apr 71, Author's Certificate No 298592, division C, filed 23 Jan 70,  
published 16 Mar 71, p 87

Translation: This Author's Certificate introduces: 1. A method of making  
bisanilidophosphonates or bisanilidothiophosphonates of the general formula



where R is an alkyl, aryl, or aralkyl, R' is a lower alkyl, Ar is an aryl,  
A is an aromatic or aromatic-aliphatic hydrocarbon radical, and X is oxygen  
or sulfur. As a distinguishing feature of the patent, a di-N-alkylanilide  
of phosphonic or thiophosphonic acid is treated with an aromatic dihydroxy  
compound with the application of heat, followed by isolation of the product  
1/2

USSR

BLIZNYUK, N. K., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 11, Apr 71, Author's Certificate No 298592, division C, filed 23 Jan 70, published 16 Mar 71, p 87

by conventional methods. 2. A modification of this method consists of heating to 150-180°C. 3. A modification of this method distinguished by the fact that the process is carried out at a residual pressure of 10-30 mm Hg with simultaneous distillation of the N-alkylaniline formed in the reaction. 4. A modification of this method distinguished by the fact that the reaction mass produced by heating the corresponding phosphonic or thiophosphonic acid dichlorides with N,N-dialkylanilines to 200-250°C is used as the di-N-alkylanilide of phosphonic or thiophosphonic acid.

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- 37 -

USSR

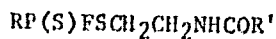
UDC 547.341.26.118.07

BLIZNYUK, N. K., STREL'TSOV, R. V., KIRILINA, L. E., and ZHEMCHUZHIN, S. G.,  
All-Union Scientific Research Institute of Phytopathology

"A Method of Making Dithiofluorophosphonic Acid Esters"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
1970, No 35, Soviet Patent No 287016, class 12, filed 31 Oct 69, published  
19 Nov 70, p 40

Translation: This Author's Certificate introduces a method of making dithio-  
fluorophosphonic acid esters of the general formula



where R is an alkyl, aryl or aralkyl, and R' is an alkyl, aryl or aryl-  
oxylalkyl. As a distinguishing feature of the patent, anhydrides of dithio-  
phosphonic acids are treated with potassium fluorides in an organic solvent  
such as methyl ethyl ketone with subsequent treatment of the resultant salt  
of dithiofluorophosphonic acid in a carboxylic acid chloride and ethylenimine,  
and isolation of the product by conventional methods.

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BLIZNYUK, N. K., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 35, Soviet Patent No 287016, class 12, filed 31 Oct 69, published 19 Nov 70, p 40

The patent also covers a modification of this method distinguished by the fact that the process is carried out at 15-60°C.

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USSR

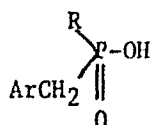
UDC 547.241.07

BLIZNYUK, N. K., PROTASOVA, L. D., KVASHA, Z. N., KLIMOVA, T. A., and  
KLOPKOVA, R. S., All-Union Scientific Research Institute of Phytopathology

"A Preparative Method for Benzylphosphinic Acids"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,  
No 11, Apr 71, Author's Certificate No 298590, division C, filed 23 Jan 70,  
published 16 Mar 71, p 87

Translation: This Author's Certificate introduces: 1. A method of making  
benzylphosphinic acids of the general formula



where R is an alkyl, aryl, or aralkyl, and Ar is an unsubstituted or sub-  
stituted phenyl. As a distinguishing feature of the patent, the process is  
simplified by treating diarylphosphonite with benzyl chloride in alcohol with  
subsequent isolation of the product by conventional methods. 2. A

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USSR

BLIZNYUK, N. K., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 11, Apr 71, Author's Certificate No 298590, division C, filed 23 Jan 70, published 16 Mar 71, p 87

modification of this method distinguished by the fact that the process is carried out with heating to 150-250°C.

2/2

USSR

UDC 632.95

BABIN, V. V., DENISENKOVA, R. N., UGRYUMOV, YE. P., SHCHEGLOV, YU. V., BLIZNYUK, N. K., STREL'TSOV, R. V., and KOLOMIYETS, A. F., Northern Caucasus Scientific Research Institute of Phytopathology; All-Union Scientific Research Institute of Phytopathology, Moscow, Ministry of Agriculture USSR

"Herbicide"

USSR Authors' Certificate No 250603, filed 14 Jun 68, published 26 Jan 70, (from RZh-Khimiya, No 20 (II), 25 Oct 70, Abstract No 20 N601P by N. B. VSEVOLOZHSKAYA)

Translation: Compounds of the general formula  $\sqrt{4}\text{-Cl-2RC}_6\text{H}_3\text{OCH}_2\text{C}(\text{O})\text{O}/_2\text{SnBu}_2$  (I) (R = Cl or Me) are not inferior in herbicidal activity to butyl esters of the corresponding aryloxyalkylcarboxylic acids. For example, mustard plants in the six-leaf phase were sprayed with aqueous solutions of I in a dose of 50, 100, 250 and 500 g/ha (calculated in acid equivalent). The dose at which the weight of aboveground portions of the plant declines 50% was 53 g/ha for I (R = Cl), whereas that for the butyl ester of 2,4-D was 61 g/ha.

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USSR

UDC 632.95

BABIN, V. V., DENISENKOVA, R. N., UGRYUMOV, YE. P., SHCHEGLOV, YU. V., BLIZNYUK, N. K., and STREL'TSOV, R. V., North Caucasus Scientific Research Institute of Phytopathology and All-Union Scientific Research Institute of Phytopathology, Moscow, Ministry of Agriculture USSR

"Herbicide"

USSR Author's Certificate No 250602, filed 14 Jun 68, published 12 Feb 70 (from RZh-Khimiya, No 18, 25 Sep 70, Abstract No 18N700 P, by P. V. Popov)

Translation: Bis-(aryloxyacetyl)-propyleneglycols-1,3 with general formula  $\text{ArOCH}_2\text{C}(\text{O})\text{OO}(\text{CH}_2)_3\text{OC}(\text{O})-\text{CH}_2\text{OAr}$  (Ar = substituted Ph) are low in volatility, exhibit greater toxicity for dicotyledonous weeds than butyl esters of aryloacetic acids and are low in toxicity for cultivated plants. New herbicides are best used as aqueous emulsions in schedules recommended for cases in which aryloacetic acids are used.

1/1

1/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--THIOPHOSPHORYLATED ETHYLAMIDES OF ALKOXYALKANE CARBOXYLIC ACIDS  
-U-

AUTHOR--(05)-BLIZNYUK, A.K., STRELTSOV, R.V., KIRILINA, L.E., KHUKHLOV,  
P.S., ZHEMCHUZHIN, S.G.  
COUNTRY OF INFO--USSR

B

SOURCE--U.S.S.R. 266,769  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PHOSPHORUS COMPOUND, AMIDE, PHOSPHORUS SULFIDE,  
ALKANE, CARBOXYLIC ACID, ORGANIC SYNTHESIS, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/1422

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128821

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AA0128821

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIOPHOSPHORYLATED ETHYLAMIDES OF ARYLOXYALKANECARBOXYLIC ACIDS  $RP(Y)(XR \text{ PRIME1})SCH \text{ SUB2 CH SUB2 NHCOR PRIME2}$  (K EQUALS ALKYL, ARYL, ARALKYL, OXYALKYL(ARYL), THIOALKYL(ARYL); R PRIME1 EQUALS ALKYL, ARYL, ARALKYL; R PRIME2 EQUALS ARYLOXYALKYL; X AND Y EQUALS O, S); WERE PREPD. BY TREATING DERIVS. OF P THIO ACIDS WITH DERIVS. OF ARYLOXYALKANECARBOXYLIC ACID. SALTS  $RP(Y)(XR \text{ PRIME1}) SH.M$  (R, R PRIME1, X, AND Y ARE SAME AS THE ABOVE AND M IS AN ORG. OR INORG. CATION), WERE USED FOR P THIOACID DERIVS.; ARYLOXYALKANECARBOXYLIC ACID CHLORIDE WAS USED FOR THE ARYLOXY, ALKANECARBOXYLIC ACID DERIV.; AND THEIR MIXT. WAS TREATED WITH ETHYLENIMINE. THE TITLE PROCESS TOOK PLACE IN AN ORG. SOLVENT, SUCH AS C SUB6 H SUB6, AT 15-20DEGREES.  
FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF PHYTOPATHOLOGY.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--METHOD FOR OBTAINING ARYLDIBENZYLPHOSPHINE OXIDES -U-

AUTHOR--(03)-BLIZNYUK, N.K., PROTASOVA, L.D., KVASHA, Z.N.

COUNTRY OF INFO--USSR

SOURCE--AUTHOR CERTIFICATE NR 259880

REFERENCE--OTKRYTIYA, IZOBRET. PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, NO 3,  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BENZENE DERIVATIVE, PHOSPHORUS OXIDE, ORGANIC PHOSPHORUS  
COMPOUND, CHEMICAL SYNTHESIS, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1770

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0137010

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0137010

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS DESCRIBED FOR  
OBTAINING ARYLDIBENZYLPHOSPHINE OXIDES OF THE GENERAL FORMULA: WHERE X  
AND Y ARE HYDROGEN, ALKYL, OR HALOGEN GROUPS. ARYLDICHLOROPHOSPHINE IS  
REACTED WITH BENZYL CHLORIDE AND ELEMENTARY PHOSPHORUS. THE REACTION  
MIXTURE IS HEATED TO BOILING (170-200 C) WITH AN ALKALI AND THE FINAL  
PRODUCT IS SEPARATED BY KNOWN METHODS. FACILITY: VSESOUZNY  
NAUCHNO-ISSLEDOVATELSKIY INSTITUT FITOPATOLOGII.

UNCLASSIFIED

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UDC: 547.26'118.07

*B*  
BLIZNYUK, N. K., LEVSKAYA, G. S., KVASHA, Z. N., VARSHAVSKIY, S. L., All-Union Scientific Research Institute of Phytopathology, Moscow, Ministry of Agriculture USSR

"A Method of Producing 1,4-Bis-(Dialkyl- or Dibenzyltrithiophosphoryl)benzene"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrazttsy, Tovarnyye Znaki, No 3, 1970, p 32, patent No 259881, filed 1 Jul 1968

Abstract: This Author's Certificate introduces: 1. A method of producing 1,4-bis-(dialkyl- or dibenzyltrithiophosphoryl)benzene. The distinguishing feature of the method is that 1,4-bis-(dichlorothiophosphoryl)benzene is interacted with alkyl halides or benzyl halides and hydrogen sulfide accompanied by heating in the presence of a catalyst with subsequent isolation of the product by conventional methods. 2. A modification of this method in which the distinguishing feature is that the process is carried out at a temperature of 120-170°C. 3. Another modification of the method described in sections 1 and 2 with the distinguishing feature that an organic base such as pyridine is used as the catalyst.

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USSR

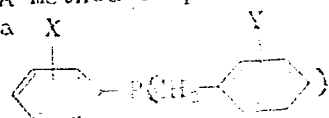
UDC: 547.341.07

**B**  
~~BLIZNIUK~~, N. K., PROTASOVA, L. D., KVASHA, Z. N., All-Union Scientific  
Research Institute of Phytopathology, Moscow, Ministry of Agriculture  
USSR

"A Method of Producing Aryldibenzylphosphine Oxides"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsey, Tovarnyye Znaki,  
No 3, 1970, p 32, patent No 259880, filed 14 Oct 68

Abstract: This Author's Certificate introduces: 1. A method of pro-  
ducing aryldi-benzylphosphine oxides of general formula X



based on arylchlorophosphines, where X and Y are hydrogen, an alkyl, or a  
halide. The distinguishing feature of the method is that the process is  
simplified and readily available initial compounds are utilized by inter-  
acting aryldichlorophosphine with benzyl chloride and elemental phosphorus

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USSR

BLIZNYUK, N. K., et al., Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 3, 1970, p 32, patent No 259880, filed 14 Oct 68

accompanied by heating. The reaction mixture is then boiled with an alkali and the product is isolated by conventional methods. 2. A modification of this method whose distinguishing feature is that the process is carried out at a temperature of 170-200°C.

2/2

USSR

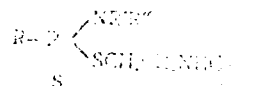
UDC: 547.26'118'122.17

BLIZNYUK, N. K., STREL'TSOV, R. V., KHOKHLOV, P. S., ZHEMCHUZHIN, S. G.,  
All-Union Scientific Research Institute of Phytopathology, Moscow, Ministry  
of Agriculture USSR

"A Method of Producing Amide Esters of Dithiophosphonic Acids"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrazttsy, Tovarnyye Znaki,  
No 3, 1970, p 31, patent No 259879, filed 17 Jan 69

Abstract: This Author's Certificate introduces a method of producing amide  
esters of dithiophosphonic acids of the general formula



where R is an alkyl, aralkyl or aryl; R' and R'' are hydrogen, an alkyl, or  
an aralkyl; R''' is an aryloxyalkyl. The distinguishing feature of this  
method is that an anhydride of dithiophosphonic acid reacts with a primary  
or secondary amine in the presence of tertiary amines with subsequent se-  
quential treatment of the resultant salt of dithiophosphonic acid amide in  
aryloxyalkylcarboxylic acid chloride and ethylenimine.

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USSR

B  
UDC 632.95

BLIZNYUK, N. K., KVASHA, Z. N., PROTASOVA, L. D., and VARSHAVSKIY, S. L., All-Union Scientific Research Institute of Phytopathology, Moscow, Ministry of Agriculture USSR

"Method of Producing Pyrocatechin Chlorophosphites"

USSR Authors' Certificate No 250139, filed 10/05/67, published 4/01/70 (from Referativnyy Zhurnal Khimii, No 16 (II), 23 Aug 70, Abstract No 16 N676 P by I. A. Mel'nikova)

Translation: A mixture of 1.125 mole  $\text{PCl}_3$ , 0.75 mole pyrocatechin and 0.6 g  $\text{C}_5\text{H}_5\text{N}$  is heated 1.5-2 hr with agitation at 60-80° in a current of dry  $\text{N}_2$ , separating pyrocatechin chlorophosphite (I) with a yield of 91-95%; b. p. 78°/9,  $n_D^{20}$  1.5672. I is an organic synthesis intermediate.

1/1

- 33 -

Instrumentation and Equipment

USSR

UDC 669.183:621.746.75

KOZLOV, G. S., BLIZNYUKOV, S. A., YAVOYSKIY, V. I., GOL'DSHTEYN, L. G., and  
USHKOVA, A. N., Moscow Institute of Steel and Alloys

"The Use of an Emission Microscope for the Investigation of Micrometallurgical  
Processes"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy — Chernaya Metallurgiya, No 11,  
1970, pp 44-49

Abstract: The use of the EF-6 emission microscope for the investigation of new  
phase formations in the crystallization process of metals is described. The  
EF-6 provides three types of reaction on the test piece: thermo-electron  
emission with heating up to 2500°C, controlled primary electron beam action  
up to 15 kev, and primary ion flux action of various gases with a disruption  
voltage of 20 kev. The EF-6 was used for studying the behavior of nonmetallic  
inclusions at the moment of their generation in the steel recrystallization  
process in the system Fe-O and in the system Fe-O with deoxidation of non-  
metallic inclusions in the melting-crystallization cycles. The temperature  
dependence of the wetting of Fe-Si-Mn-O alloys by manganese and iron silicates  
is demonstrated.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--ABSORPTION SPECTRA AND CHEMICAL STRUCTURE OF 5, AMINOSALICYLIC ACID  
AND ITS N,ACETYL AND N,BENZOYL DERIVATIVES -U-  
AUTHOR-(02)-SOLONSKA, N.T., BLIZNYUKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FARM. ZH. (KIEV) 1970, 25(1), 22-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ABSORPTION SPECTRUM, UV ABSORPTION, AMINOSALICYLIC ACID,  
PHARMACEUTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0142

STEP NO--UR/0491/70/025/001/0022/0028

CIRC ACCESSION NO--AP0135639

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135639

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE UV ABSORPTION SPECTRA OF 3 TRISUBSTITUTED BENZENES, RELATED TO PAS, AND THEIR DERIVS. (ACETYLATED, BENZOYLATED, ETC.) WERE STUDIED. THE SUBSTITUTENTS STUDIED WERE: CO SUB2 H, OH, NH SUB2, NHAC, AND NHBZ. SPECTRA WERE MEASURED IN 6 DIFFERENT ACIDIC AND BASIC SOLVENTS. THE UV SPECTRUM OF 5,AMINOSALICYLIC ACID AND OF ITS ACYL AS WELL AS BENZOYL DERIV. ARE TYPICAL FOR PI YIELDS PI TRANSITION IN THE AROMATIC RING, INCLUDING THE N ATOM FROM THE AMINO GROUP. IN SOME CASES, THE NONBONDING ELECTRONS OF O FROM THE OXO GROUP CAN ALSO BE INVOLVED. THE ELECTRONIC STRUCTURE AND THE MODE OF CONJUGATION OF 5,NH SUB2 AS WELL AS 5,NHCOR WITH AROMATIC RINGS ARE ALSO DISCUSSED. INCLUSION OF N ELECTRONS IS RESPONSIBLE FOR THYLONG WAVE ABSORPTION AND THE TRANSITIONS FROM THE RING TO PI ORBITAL OF THE CARBONYL GROUP FOR THE SHORT WAVE BANDS. BOTH 5,AMINOSALICYLIC ACID AND ITS N,ACYL DERIV. HAVE A SIGNIFICANT AFFINITY FOR M,AMINOBOZIC ACID, MANIFESTED IN THE FACT THAT ALL THESE COMPS. DO NOT POSSESS DONOR ACCEPTOR PROPERTIES, DISTINCT FROM PAS. THE STRUCTURAL STABILITY OF THE ABOVE COMPS. IS DETO. BY THE OBSD. N YIELDS PI TRANSITIONS. FACILITY: KHARKOV PHARM. INST., KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC: 669.15-194:669.26:620.186

BARANOV, A. A., BLIZNYUKOVA, L. A., GLEBOVA, E. D., and KARPOV. N. A.

"Structural Changes Upon Deformation and Annealing of Iron-Chromium Alloys"

Izv. VUZ, Chernaya Metallurgiya, No 6, 1970, pp 120-124

Abstract: The changes in the structure of vacuum treated alloys of iron with chromium in quantities of 25, 37, and 50% were studied with cold deformations of 5, 20, and 45% and subsequent heating to 400-1200°C. Deformation was by slipping and twinning, with the twinning increasing with increasing chromium content. The development of recrystallization in the deformed alloys was noted at 700°C. In alloys containing chromium 35 [sic] and 50%, recrystallization was accompanied by formation of the  $\sigma$ -phase. The changes in the twinning structure, polygonization, and grain growth occurring during heating are described. Three illustrations; two tables; seven biblio. refs.

1/1



USSR

UDC 621.391.19

BLOK, A. S., and KOROLEV, A. N.

"Pattern Recognition Device"

USSR Authors' Certificate No 343279, Cl. G06k 9/00, filed 6 Jul 70, published 6 Jul 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 20, 1972, p 170)

Abstract: To simplify the device and facilitate its operation during a change of processing algorithms, the duplicator, which may take the form, for example, of a mirror tunnel, is situated between the transparency and the space filter matrix, with its input made to coincide with the Fourier spectrum plane, in which a diffuser screen with a drive for rotation is mounted.

1/1

- 19 -

USSR

UDC: 621.375.8

KRUPITSKIY, E. I., KARPOV, L. P., ZYUZIN, O. M., BLOK, A. S., Leningrad  
Electrical Engineering Institute of Communications ~~Imeni~~ Professor M. A.  
Bonch-Bruyevich

"A Multichannel Optical Correlator"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 7, Mar 72, Author's Certificate No 329612, Division H, filed 29 May 70,  
published 9 Feb 72, p 212

Translation: This Author's Certificate introduces: 1. A multichannel optical correlator with two-dimensional channels. The device contains a coherent light source, a collimator, a transparency carrying an image of the pattern to be recognized, a Fourier-transform lens, and a photocell matrix. As a distinguishing feature of the patent, in order to improve the accuracy of registration of correlation functions, a reflecting diffraction grating is placed in the rear focal plane of the lens, which performs Fourier transformation of the light flux passing through the transparency carrying a recording of the image to be processed, and a reference-mask matrix is placed together with the photocell matrix in the forward focal

1/2

USSR

KRUPITSKIY, E. I. et al., USSR Author's Certificate No 329612

plane of the lens. 2. A modification of this correlator distinguished by the fact that stray light beyond the photocell inputs is reduced by making the diffraction grating with an opening for filtering out the fixed component of the image being processed.

2/2

- 89 -

USSR

UDC: 621.391.19

KRUPITSKIY, E. I., KARPOV, L. P., ZYUZIN, O. M., BLOK, A. S.

"Device for Formation of Characteristics During Recognition of Patterns"

USSR Author's Certificate Number 307411, filed 6/04/70, published 29/07/71, (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 3, 1972, Abstract No 3 A379 P)

Translation: For formation of characteristics during recognition of patterns a device is suggested containing a source of coherent light, a collimator, a transparency with the pattern to be recognized, and a Fourier transform lens along the optical axis of the device. In order to increase the speed and reliability of recognition, an optical system to multiply the light flux-such as a matrix of a small-diameter lens and a converting lens-is placed between the collimator and transparency, while a matrix of masks and photoreceptors, based on the number of light fluxes multiplied, is placed in the output plane of the device. 1 figure.

1/1

- 12 -

USSR

UDC 621.391:519.27

B  
BLOK, A. S., KARPOV, L. P.

"Problem of Multiplication of Images in Coherent Optical Information Processing Systems"

Materialy nauchnotekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 2 (Materials of the Scientific and Engineering Conference. Leningrad Electrotechnical Communications Institute, Vyp 2), 1970, pp 136-142 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A31)

Translation: This article contains an investigation of various methods of multiplication of input images by optical means. The latter is required when constructing optical-electronic recognition systems, when reducing integral microunits, and so on. A brief mathematical description of some methods of multiplication is presented. Results of the preliminary experiment are presented.

1/1

- 123 -

USSR

UDC: 551.596+534-143

BLOK, A. V. and OL'SHEVSKIY, V. V.

"Effect of Radiated Signal Parameters on the Frequency-Time Characteristic of Sea Return"

Mošcow, V sb. Tezisy dokl. 3-y Vses. shkoly--seminara po stat. gidroakustike, 1971 (Theses of Reports, Third All-Union School--Seminar on Statistical Hydroacoustics--collection of works) 1972, pp 31-45 (from RZh--Fizika, No 4, 1973, Abstract No 4Zh645)

Translation: The authors consider the effect of parameters of a radiated signal on the dispersion of the time-correlation function of the signal and of the sea return for a discrete model of acoustical wave dispersion. On the basis of the results of the authors' work (RZhFiz, 1969, 10Zh517) the dispersions for various types of signal are computed: bell-shaped (rectangular) pulses with linear frequency modulation; rectangular sections of stationary Gaussian noise; rectangular sections of harmonic processes; amplitude (phase) modulated, stationary Gaussian noise. It is shown that the dispersion is a function of the signal complexity coefficient (the product of the effective signal duration and the effective width of its frequency spectrum), the parameter characterizing the frequency modulation or the width of the noise-filled band, and the  $1/2$

- 6 -

USSR

BLOK, A. V. and OL'SHEVSKIY, V. V., V sb. Tezisy dokl. 3-y Vses shkoly--seminara po stat. gidroakustike, 1971 (from RZh--Fizika, No 4, 1973, Abstract No 4Zh645)

effective duration of the signal. Examples are given from which it follows that the signal complexity coefficient does not always uniquely determine the dispersion behavior. V.D.K.

2/2

USSR

621.395.677.71

MALYUZHINETS, D. G. and BLOK, A. V.

"Some Scanning Characteristics of a Waveguide-Aperture Antenna Radiating into Mountain Rock"

V sb. Shakhtn. radiosvyaz' (Mining Radio Communication---collection of works) Moscow, 1970, pp 55-61 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3836)

Translation: The directional diagram and the angular frequency characteristics of the antenna are computed. Three illustrations. V. Ch.

1/1



1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--DIAGNOSTIC SIGNIFICANCE OF CYTO HISTOLOGICAL STUDIES OF THE  
BIOPSIED LIVER IN COMBINATION WITH THE TISSUE CULTURE IN VITRO -U-  
AUTHOR--(02)-LOGINOV, A.S., BLOK, YU.YE

CCUNTRY OF INFO--USSR

SGURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 4, PP 44-50

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER, TISSUE CULTURE, BIOPSY, TISSUE REGENERATION, CANCER,  
METASTASIS, LARGE INTESTINE, CIRRHOSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0626

STEP NO--UR/0504/70/042/004/0044/0050

CIRC ACCESSION NO--AP0108841

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0108841

ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. THE AUTHORS DESCRIBE THE METHOD OF INVESTIGATING THE BIOPSIED LIVER TISSUE AND GIVE THE RESULTS OF COMPARISON BETWEEN MORPHOLOGICAL PECULIARITIES OF CYTOLOGICAL AND HISTOLOGICAL PREPARATIONS, AS WELL AS THE CULTURE OF THE LIVER TISSUE IN 12 PATIENTS AT THE AGE OF 17-57 YEARS OLD. THE IMMEDIATE CYTOLOGICAL STUDY OF THE BIOPSIED MATERIAL MADE IT POSSIBLE TO HAVE A PRELIMINARY IDEA OF THE NATURE OF THE DYSTROPHIC CHANGES IN THE RENAL EPITHELIUM, EXTENT OF CELLULAR ATYPIA, MANIFESTATIONS OF THE INFLAMMATORY AND REPARATIVE PROCESSES IN THE LIVER. IN CULTIVATING THE RENAL TISSUE IN VITRO IN PATIENTS WITH CIRRHOSIS OF THE LIVER MARKED PROLIFERATION OF THE CONNECTIVE TISSUE CELLS AND DEVELOPMENT OF ACUTE DYSTROPHIC CHANGES OF THE EPITHELIAL CELLS WERE OBSERVED. IN CHRONIC HEPATITIS PROLIFERATION OF THE EPITHELIAL ELEMENTS PREVAILED. IN A FEMALE PATIENT SUSPECTED OF CANCER METASTASES OF THE COLON INTO THE LIVER WITH A NEGATIVE RESULT OF THE HISTOLOGICAL ANALYSIS OF THE BIOPSIED TISSUE ON A CYTOLOGICAL PREPARATION, THE AUTHORS FOUND ATYPICAL CELLS AND IN VITRO CULTIVATION OF THE TISSUE PROLIFERATION OF THE CANCER CELL COMPLEXES WERE OBSERVED. A SIMILAR RESULT WAS OBTAINED IN CYTOLOGICAL INVESTIGATION OF THE BIOPSIED TISSUE OF THE LIVER INCLUDING CULTIVATION OF THE TISSUE IN VITRO, AND IN A PATIENT WITH A MIXED LIVER CIRRHOSIS AND SUSPECTED OF CIRRHOSIS, CANCER OF THE LIVER. FACILITY: VSESOUZNYI N-1 INSTITUT RASTROENTEROLOGII MINISTERSTVA ZDRAVOOKHRANENIYA SSSR, MOSCOW.

UNCLASSIFIED

USSR

UDC: 535.853.36

BLOKH, A. A., GOLYANDIN, N. S., KOSSOVA, N. F., and LOZINSKAYA, S. B.

"The ISK-24 Infrared Spectrophotometer"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 4, Apr 73, pp 32-34

Abstract: The authors study the new ISK-24 two beam spectrophotometer developed by LOMO (Leningrad Optico-Mechanical Society). The unit is designed for obtaining the absorption spectra of various substances in the 400-4000  $\text{cm}^{-1}$  range under conditions of normal and polarized radiation. The unit has high technical characteristics: resolution of 0.5  $\text{cm}^{-1}$  in the 1000  $\text{cm}^{-1}$  range, wave number scale accuracy of  $\pm 1 \text{ cm}^{-1}$ , and a photometric accuracy of  $\pm 1$  percent. The unit is equipped with polarizer gratings developed by the F. M. Gerasimov Laboratory of the State Institute of Optics imeni S. I. Vavilov. The spectrophotometer is based on the null principle.

1/1

- 135 -

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--RATE OF FORMATION OF CONDENSATION NUCLEI IN SUPERSATURATED VAPOR  
-U-  
AUTHOR-(03)-BLOKH, A.G., BAZAROV, S.M., VARVARIN, S.V.  
COUNTRY OF INFO--USSR **B**  
SOURCE--INZH. FIZ. ZH. 1970, 18(3), 467-73  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--PHYSICS  
  
TOPIC TAGS--VAPOR CONDENSATION, NUCLEATION, KINETIC EQUATION, MOLECULAR  
INTERACTION, COMPLEX MOLECULE, BOND ENERGY  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/1437 STEP NO--UR/0170/70/018/003/0467/0473  
CIRC ACCESSION NO--AP0118426  
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118426

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. KINETIC EQUATIONS FOR THE PHASE TRANSITIONS IN SUPERSATD. VAPOR WERE DERIVED ON THE BASIS OF THE DYNAMICS OF CONDENSATION PROCESSES. IT IS ASSUMED THAT THE FORMATION OF AN EQUIL. STEADY STATE COMPLEX OF G MOL. IS PRECEDED BY THE FORMATION OF INTERMEDIATE UNSTABLE ASSOCS. CONSISTING OF A SMALLER NO. OF MOL. COLLISION OF 2 MOL. IS CONSIDERED THE STARTING POINT. A BOND IS FORMED BETWEEN THEM AND AN UNSTEADY STATE DOUBLE SATD. COMPLEX APPEARS. SUCH A MOL. COMPLEX IS DESIGNATED AS ACTIVATED BECAUSE THE BOND ENERGY IS CONCD. IN IT. THE REMOVAL OF THE BOND ENERGY FROM THE ACTIVATED COMPLEX CAN BE BY COLLISIONLESS WITH A 3RD GAS MOL. OR WITH A SOLID SURFACE. THE RELATIVE LIFE OF THE ACTIVATED COMPLEXES INCREASE WITH THE NO. OF MOL. IN THE COMPLEX. THIS IS ESP. NOTICEABLE IN COMPLEX CONTG. LESS THAN 10 MOL. WITH INCREASING NO. OF MOL. IN THE DEACTIVATED COMPLEX THE FREQUENCY OF COLLISIONS INCREASES NOTICEABLY.

UNCLASSIFIED

USSR

UDC: 681.3.06.51

BLOKH, A. Sh., NEVEROV, G. S.

"An Aid for Developers of Algorithms"

V pomoshch' avtoram algoritmov (cf. English above), Minsk, Belarus', 1971, 191 pp. ill. 69 k. (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V823 K)

Translation: The book presents a practical method of developing algorithm flowcharts. There is an introduction and three chapters. The introduction outlines the minimum necessary information on digital computer programming. Chapter I describes the canonical method of synthesizing flowcharts of algorithms of binary logical variables. Chapter II gives the procedure of constructing the flowcharts of algorithms with a large number of logical conditions. Chapter III outlines the canonical method of synthesis of flowcharts of algorithms of  $k$  logical variables. The text is illustrated by numerous examples, including an example of development of an algorithm which models a complex production process. V. Mikheyev.

1/1

USSR

UDC 51:155.001.57:681.3.06

BLOKH, A. Sh., ORLOV, V. A.

"Restoration of Values of Characteristics Upon Recognition of Patterns"

Vestn. Belorus. Un-ta [Herald of Belorussian University], Series 1, No 1, 1971, pp 40-44, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V824 by the author's).

Translation: Statistical and probability approaches are described for the restoration of unknown values of characteristics during teaching of pattern recognition to machines. Experiments are presented, performed for comparison of these approaches. Comparison is performed on the basis of the relationship to the deterministic case when teaching is performed only using objects, all values of characteristics of which are known. It is demonstrated that restoration of values of characteristics for the teaching sequence improves the quality of teaching.

1/1

USSR

UDC 621.391

BLICKH, E. I. [Editor-In-Chief *Of Issue*]

"Transmission Of Discrete Communications On Channels With Grouping Errors"

Peredacha diskretnykh soobshcheniy po kanalam s gruppiruyshchimiya oshibkami  
(cf. English above), Institute Of Problems Of Information Transmission, AS, USSR;  
Izd. "Nauka" Moscow, 1972, 148 pp, ill., 75 k.

FOREWORD

Works are presented in the collection which are devoted to the accuracy of transmission of communications on channels with grouping errors. Various methods are considered for a mathematical description of the source of errors. The possibility of codes to correct errors is evaluated, and the complexity of decoding is analyzed. The limiting potentialities of communication systems and algorithms of their operation are studied. The book is intended for scientific workers and engineers concerned with problems of transmission of discrete communications.

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USSR

BLOKH, E. L., Peredacha diskretnykh soobshcheniy po kanalam s gruppiruyshchimisya oshibkami, 1972, 148 pp, ill., 75 k.

CONTENTS

	page
Preface	3
BLOKH, E.L., ZYABLOV, V.V., "Cascade Iterated Codes And Their Use For Correction Of Error Packets"	5
ZYABLOV, V.V., "New Treatment Of Codes For Localization Of Errors, Their Correcting Properties, And Decoding Algorithm"	8
POPOV, O.V., "Concerning Correction Of Errors By Wolf-Elapas Codes"	19
ZYABLOV, V.V., "Decoding Algorithm Of Nonbinary BCH Codes And Realizing Its Circuit"	23
AFANAS'YEV, V.B., BREUSOV, V.I., "Construction Of Models Of Decoder For Realization On Electronic Computer In A System With Sequential Decoding"	38

2/5

USSR

BLOKH, E. L., Peredacha diskretnykh soobshcheniy po kanalam s gruppiruyshchimisva oshibkami, 1972, 148 pp, ill., 75 k.

ZYABLOV, V.V., AFANAS'YEV, V.B., IVANOVA, L.A., SHUTIKOV, I.V., Results Of Modeling Of Three-Dimensional Codes With Localization Of Errors" 47

KOSHELEV, V.N., "Concerning Distribution Of Input Energy Between Direct And Reverse Channels With Gaussian Noise" 52

ZORCHOVICH, YU.L., "Increase of Correctness Of Information Transmission In Systems With Re-examination By An Analysis Of The Combinations Which Were Suppressed By Blocking" 53

ZHIGULIN, L.F., POPOV, O.V., AFANAS'YEV, V.B., "Increase Of Correctness Of Transmission In A System With Re-examination Without An Increase Of The Redundancy Constant" 56

ZHURAVSKIY, YU.I., ZHIGULIN, L.F., "Concerning The Possibility Of Block Synchronization With Respect To Interrogation Combinations In System With Blocking" 68

3/5

- 51 -

USSR

BLOKH, E. L., Peredacha diskretnykh soobshcheniy po kanalam s gruppiruyshchimisya Oshibkami, 1972, 148 pp, ill., 75 k.

TURIN, V. YA., "Combination Of Two Schemes For Construction Of A Model Of An Error Source" 74

IGEL'NIK, B.M., "Relations Between Parameters Of Channels Satisfying The Bennet-Froelich Models Or Models With Sequences Of Errors, And Parameters Of A stationary Binary Symmetrical Channel With Error Packets" 77

BAKHAR', E.M., "Concerning One Generalization Of The Gilbert Model" 81

BAKHAR', E.M., "Statistics Of Errors In Experimental Packet" 86

TURIN, V. YA., "Calculation Of Probabilities Of A Different Number Of Errors In A Unit Of Specified Length" 94

TURINA, G.A., TURIN, V.YA., "Calculation Of Distribution Of Probabilities Of The Quantity Of errors In A Unit By the Monte-Carlo Method" 101

TURINA, G.A., "Generator, Modeling Error Source" 113

4/5

USSR

BLOKH, E. L., Peredacha diskretnykh soobshcheniy po kanalam s gruppiruyshchimisya oshibkami, 1972, 148 pp, ill., 75 k.

MOROZOV, A.M., LEONT'YEV, A.G., "To The Problem Of Physical Generation Of Random Binary Sequences For Modeling Errors In Communication Channels" 116

LEONT'YEV, A.G., MOROZOV, A.M., FUKS, B.K., "Random Sequences Generator And Test Of Its Quality" 126

BLOKH, E.L., BAKHAR', E.M., "To A Problem Concerning A series Of 'Successes' For Renewal Processes" 134

TURIN, V. YA., "Integral Representation Of Sums Containg Binomial Coefficients" 139

5/5

USSR

UDC 577.4

BLOKH, E. L., ZYABLOV, V. V.

"Cascade Iterated Codes and Application of Them to Correct Error Packets"

V sb. Peredacha diskret. soobshch. po kanalam s gruppiruyushchimisya oshibkami  
(Transmission of Digital Messages over Channels with Group Errors — collection of works), Moscow, Nauka Press, 1972, pp 5-8 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V451)

Translation: A scheme is proposed for encoding cascade iterated codes. It is demonstrated that the known coding schemes for iterated codes and also cascade codes are special cases of the scheme for coding cascade iterated codes. The application of this generalized scheme has permitted the construction of codes which are effective for correcting a single error packet. A procedure is proposed for selecting the parameters of the cascade iterated code correcting the single error packet of given length and having the minimum number of check symbols for the given code length and structure. Here, in many cases the codes obtained can have a smaller number of check symbols than the Fire codes or the Reed-Solomon codes which correct the same packet of errors.

1/1

- 37 -

172 - 015 UNCLASSIFIED PROCESSING DATE--1RSEP70  
TITLE--RESEARCH IN A DESIGN PLANNING INSTITUTE -U-

AUTHOR--(05)-KARATAYEV, G., VNIYZEMAMASH, M., GAYDAYENKO, YU., NAUMOV, A.,  
BLOKH, G.

COUNTRY OF INFO--USSR

SOURCE--STROITEL, NAYA GAZETA, MAY 6, 1970, P 2, COLS 5-7

DATE PUBLISHED--06MAY70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, BEHAVIORAL AND SOCIAL  
SCIENCES

TOPIC TAGS--RESEARCH AND DEVELOPMENT, EARTH HANDLING EQUIPMENT, DESIGN  
FACILITY PLANNING, INDUSTRIAL INSTITUTE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAHE--1986/0183

STEP NO--UR/9024/70/000/000/0002/0002

IRC ACCESSION NO--AN0102254

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--18SEP70

IRC ACCESSION NO--AN0102254

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THREE ARTICLES BY THE  
AFOREMENTIONED AUTHORS DISCUSS CERTAIN DRAWBACKS OF THE SOVIET RESEARCH  
AND DEVELOPMENT SYSTEM. ACCORDING TO KARATAYEV, THE VNIIZEMMASH  
COMPRISES RESEARCH DEPARTMENTS NAUCHNO ISSLEDOVATEL, SKIYE OTDELY, A  
LEADING DESIGN BUREAU GOLOVNOYE KONSTRUKTORSKOYE BYURO, AND A PILOT  
PLANT, OPYTHYY ZAVOD-. ITS PRINCIPAL PROBLEM IS LACK OF TESTING AND  
FIELD TESTING FACILITIES FOR THE EARTH MOVING MACHINERY IT DEVELOPS.  
GEMMERLING COMPLAINS ABOUT THE "DOUBLE LIFE" STANDARD FORCED UPON HIS  
INSTITUTE BY THE MINISTRY OF BUILDING MATERIALS, U.S.S.R. THE  
RESEARCH, NAUCHNAY, AND THE DEVELOPMENT, PROYEKTNAY, -SECTIONS OF THE  
INSTITUTE ARE SUBORDINATE TO DIFFERENT MAIN ADMINISTRATIONS OF THE  
MINISTRY AND HAVE DIFFERENT BUDGETS. IN GEMMERLING, S OPINION, BUDGET  
MONEYS SHOULD BE ALLOCATED TO THE ADMINISTRATION OF THE INSTITUTE TO  
FUND THE DEVELOPMENT OF PILOT PROJECTS ON THE BASIS OF COMPLETED  
RESEARCH PROGRAMS.

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--SULFUR VULCANIZATION OF RUBBERS -U-  
AUTHOR--(05)-BLOKH, G.A., UTLENKO, YE.V., YUTILOV, YU.M., NAZMEYEV, A.A.,  
KISINA, L.I.  
COUNTRY OF INFO--USSR **B**  
SOURCE--U.S.S.R. 263,133  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZISY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--04FEB70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--SULFUR, VULCANIZATION, RUBBER, BENZIMIDAZOLE, CHEMICAL PATENT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/1477 STEP NO--UR/0482/70/000/000/0000/0000  
CIRC ACCESSION NO--AA0123876  
UNCLASSIFIED



2/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70  
CIRC ACCESSION NO--AA0123876  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SULFUR VULCANIZATION OF RUBBERS  
WAS AIDED BY THE INTRODUCTION OF 0.1-5 WT. PERCENT BENZIMIDAZOLINE  
ACCELERATORS (I) (R EQUALS ALKYL, ARYL, ARYLOXY, ALLYL, FURYL,  
FURYLALKYLENE).

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--VULCANIZATION OF LOW MOLECULAR WEIGHT CARBOXYL CONTAINING RUBBER  
SKD-1 -U-  
AUTHOR--(05)-EBICH, YU.R., BLOKH, G.A., MELAMED, CH.L., GRIGORYANTS, I.K.,  
SHANINA, L.P.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHMOL. 1970, 13(2), 263-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--VULCANIZATION, CARBOXYLATE RUBBER, ORGANIC SULFUR COMPOUND,  
ZINC OXIDE, TENSILE STRENGTH/(U)SKD1 SYNTHETIC RUBBER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3005/0183 STEP NO--UR/0153/70/013/002/0263/0266  
CIRC ACCESSION NO--AT0132460  
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0132460

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VULCANIZATION RATES, SWELLING, CO SUB2 H GROUP CONTENTS, AND UNSATN. WERE DETD. FOR SKD-1 RUBBER DURING AND AFTER ITS VULCANIZATION WITH 5, IMINO, 1, 2, 4, DITHIAZOLIDINE, 3, THIONE (I), ZNO MIXT. OR WITH PIPERIDINO TRISULFIDE (II), ZNO MIXT. ZNO, I, OR II ALONE WERE NOT SATISFACTORY. THE BEST RESULTS WERE OBTAINED WITH 7 PARTS I AND 5 PARTS ZNO IN 100 PARTS SKD-1 AT 80DEGREES. THE VULCANIZATES OBTAINED WITH I AND ZNO HAD 2-3 TIMES LARGER TENSILE STRENGTH AT BREAK THAN THE VULCANIZATES OBTAINED WITH ZNO ALONE. FACILITY: DNEPROPETROVSK. KHIM.-TEKHNOL. INST. IM. DZERZHINSKOGO, DNEPROPETROVSK, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--POSSIBLE ABSORPTION OF HYDROGEN SULFIDE, ESCAPING DURING THE  
VULCANIZATION OF EBONITE MIXTURES, USING ZEOLITES -U-  
AUTHOR--(05)-KOCHANOVA, O.M., BLOKH, G.A., KOKMAN, F.S., STRELOK, I.M.,  
LEVINA, S.A.  
COUNTRY OF INFO--USSR **B**  
SOURCE--KAUCH. REZINA 1970, 29(3), 15-17  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--EBONITE, VULCANIZATION, HYDROGEN SULFIDE, ZEOLITE, SYNTHETIC  
RUBBER/(U)SKMS50P SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1997/0543

STEP NO--UR/0138/70/029/003/0015/0017

CIRC ACCESSION NO--AP0119462

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119462

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF 8 WT. PARTS ZEOLITES FENAX 2 OR FENAY 3 TO EBONITE (BASED ON SYNTHETIC RUBBER SKMS 50P 100 AND S 40 PARTS) DECREASED THE EVOLUTION OF H SUB2 S DURING VULCANIZATION AT 170DEGREES BY UP TO 60PERCENT. OTHER COM. ZEOLITES (NACDX, FECAA 3, NAX) HAD CONSIDERABLY LOWER H SUB2 S ABSORPTION ABILITY. FACILITY: SVERDLOVSK. FILIAL NAUCH.-ISSLED. INST. REZIN. PROM., SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--INDUSTRIAL TESTING OF COLORED SOLE RUBBERS PREPARED WITH HYDROGEN  
XANTHANE 5,IMINO,1,2,4,DITHIAZOLIDIN,3,THIONE -U-  
AUTHOR-(04)-MELAMED, CH.L., BLOKH, G.A., TSIPENYUK, E.V., LEBED, I.G.

COUNTRY OF INFO--USSR

SOURCE--KOZH. OBUV. PROM. 1970, 12(2), 54-6

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MILITARY SCIENCES

TOPIC TAGS--FOOTGEAR, STYRENE, VULCANIZATION, THIAZOLE, RUBBER/(U)SKMS3ORP  
STYRENE RUBBER, (U)BS45AK SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0938

STEP NO--UR/0498/70/012/002/0054/0056

CIRC ACCESSION NO--AP0124598

UNCLASSIFIED

2/2 012


UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124598

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HYDROGEN XANTHANE IS A GOOD  
VULCANIZATION ACCELERATOR FOR STYRENE RESINS OF THE TYPE SKMS-30RP AND  
BS-45-AK AND MAY REPLACE CAPTAX AND ALTAX. FOR MIXTS. CONTG. NATURAL  
RUBBER A MIXT. OF HYDROGEN XANTHANE AND CAPTAX OR ALTAX WAS USED.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--THERMOELECTRIC EDDY CURRENTS IN HETEROGENEOUS FILMS -U-  
AUTHOR--(02)-BLEKH, M.D., SKOK, E.M.   
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1970, 12(3), 920-2  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--PHYSICS  
  
TOPIC TAGS--THERMOELECTRIC PROPERTY, EDDY CURRENT, TEMPERATURE GRADIENT,  
ELECTRODE POTENTIAL, POLYCRYSTALLINE FILM  
  
CONTROL MARKING--NO RESTRICTIONS  
  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1987/1995 STEP NO--UR/0181/70/012/003/0920/0922  
  
CIRC ACCESSION NO--AP0105069  
UNCLASSIFIED



2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSIGN NO--AP0105069

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A GENERAL PROBLEM WAS CONSIDERED OF THE APPEARANCE OF THERMOELEC. EDDY CURRENTS IN AN INHOMOGENEOUS FILM IF THE TEMP. GRADIENT IS DIRECTED NORMAL TO THE GRADIENT OF CONC. OF CURRENT CARRIERS. THE DISTRIBUTION OF ELECTROCHEM. POTENTIAL WAS FOUND IN A RECTANGULAR PLATE. ASSUMING A SMALL TEMP. GRADIENT, THE EQUATION IS LINEARIZED AND ELECTROCHEM. POTENTIAL IS FOUND BY SOLVING THE EQUATION OF CONTINUITY UNDER THE CONDITIONS OF ZERO CURRENT AT THE EDGES OF THE PLATE. FACILITY: INST. FIZ. POLUPROV., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

UDC 539.3

BLOKH, M. V., TSUKROV, S. Ya.

"Axisymmetric Contact of Thin Cylindrical Shells"

V sb. Raschet. prostranstv. sistem v stroit. mekh. (Calculation of Three-Dimensional Systems in Structural Mechanics -- Collection of Works), Saratov, Saratov University, 1972, pp 79-82 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V148)

Translation: The contact pressure between two thin shells of finite length set one upon the other with tightening is determined. The shells may have a distorted initial form of the meridian and be subjected to an axisymmetric load. The problem is reduced to a fourth-order linear differential equation which admits an exact solution. The problem can be generalized for the case when the contact of the shells is over a portion of the surface, for example when one shell is mounted with tightening to another on a certain segment from the end. 5 ref. V. M. Tolkachev.

1/1

USSR

UDC: 532.525

BLOKHIN, A. M.

"Conical Busemann Flow"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR--  
Seriya Tekhnicheskikh Nauk, No 3, 1972, pp 34-38

Abstract: The basis for this paper is an earlier work (A. Busemann, Luftfahrtforschung, 1942, Bd. 19, No. 4, p 137) proposing an axially symmetrical internal flow, consisting in an isoentropic conical compression, produced by a conical jump in density with the apex in space. This type of flow, realized in the inverse Busemann nozzle, is of interest because of its applicability to aircraft. The basic equation for the Busemann flow is given, and a number of questions arising in connection with the characteristics of this equation is explored. A family of integral lines for the equation is plotted, the numerical method for this plot being confirmed for a Mach number greater than unity. The behavior of the integral lines is studied. The author is associated with the Institute for Theoretical and Applied Mechanics at Novosibirsk.

1/1

USSR

B UDC: 621.391.8:519.27

YELAGIN, V. A., BELYKH, S. F., BLOKHIN, A. V.

"One of the Methods of Determining the Probability Characteristics of Instability of the Operating Point of Threshold Devices Subjected to a Signal and Noise"

Tr. Ural'sk. politekhn. in-ta (Works of the Ural Polytechnical Institute), 1970, sb. 183, pp 120-125 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A21)

Translation: A method is outlined for determining the law of distribution of the probability density for deviation of the operating point based on quantization of a signal with respect to levels. The process is treated as stationary within the limits of discreteness. The case of a signal which is a linear function of time mixed with normal noise is considered by way of example. Five illustrations, bibliography of two titles. N. S.

1/1

AA0040726-

BLOKHIN I.Ye.

UR 0482

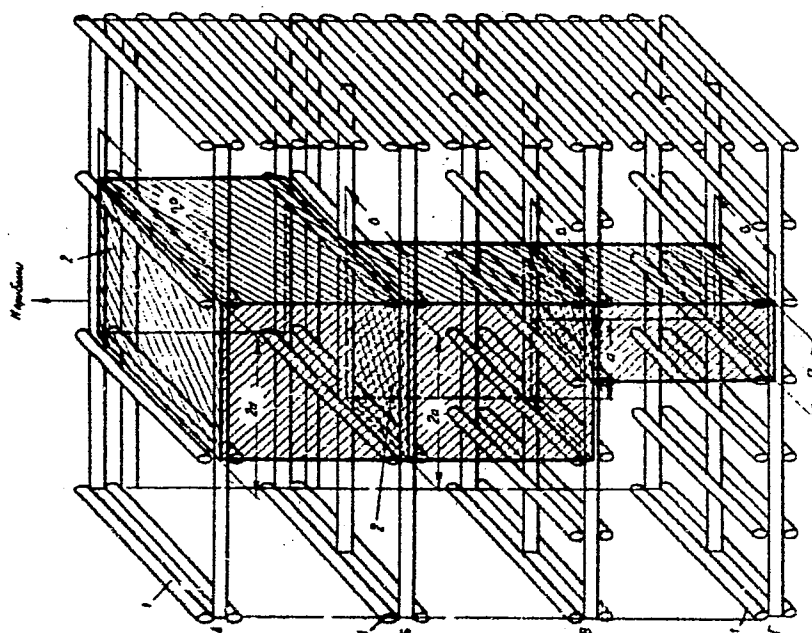
Soviet Inventions Illustrated, Section I Chemical, Derwent, /-70

242344 COOLING FRAME FOR INSIDE CASTINGS composed of parallel members (1) whose compartments (2) are free transversely to form vertical channels; the cross areas of these compartments reduce in stages from the top down starting at the feeder head. This allows directed access of molten metal to parts of the mould furthest from the feeder head. The staged reduction ensures that the lower compartments (a-a) harden first, allowing metal in from the central compartments (2a-a) and so on up.

4.7.66 as 1089813/22-2. VASILEVSKII.P.F.et al.CENTRAL ENGINEERING TECHNOLOGY INST. (11.9.69) Bul 15/25.4.69 Class 31b<sup>2</sup>. Int.Cl.B 22d.

1/3  
18  
19750376

AA0040726



7/3

19750377

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AA0040726

AUTHORS: Vasilevskiy, P. F.; Kuznetsov, G. A.; Shiryayev, V. V.;  
Blokhin, I. Ye.; Bel'tsov, P. F.; and Litvyakova, O. N.

Tsentralnyy Nauchno - Issledovatel'skiy Institut Tekhnologii  
Mashinostroyeniya

19750378

Acc. Nr:

AP0044213

Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskiy Zhurnal, 1970, Vol 56,  
Nr 1, pp 13-18

HETEROCHRONISM OF SYNPHASIC JOINT MOVEMENTS

By I. P. Blokhin

From Departm. of Physiology P. S. Lesgaft Institute for Physical Culture, Leningrad

The joint movements are heterochronic. The degree of heterochronism is less in synphasic movements of both upper extremities than in the lower ones. Heterochronism is the least in the joint action of fingers of one hand and is better expressed in the movements of the hip and shoulder ranging in our study from  $6.0 \pm 0.9$  msec to  $39.2 \pm 7.5$  msec.

MT

1/1

REEL/FRAME  
19770699

2



USSR

BAYBORODIN, Yu. V., BLOKHIN, L. N., STROGALEV, M. A.

"Synthesis of Optimal Structure of a System for Semiautomatic Stabilization of an Aircraft in a Glide"

Vtoraya Chetayevsk. Konf. po Analit. Mekh., Ustoychivosti Dvizheniya i Optimal'n. Upr., 1973. Annotatsii Dokl. [Second Chetayev Conference on Analytic Mechanics, Stability of Motion and Optimal Control, 1973. Abstracts of Reports -- Collection of Works], Kazan', 1972, p 55 (Translated from Referativnyy Zhurnal Mekhanika, No 5, 1973, Abstract No 5A293).

Translation: The problem of semiautomatic stabilization of an aircraft in its glide in the longitudinal plane is analyzed from the standpoint of the linear theory of optimal filters. As an example, the synthesis of the optimal structure for a device for conversion of the control signal with semiautomatic landing approach using a visualization system is studied. The optimal transfer function is produced for a correcting device, as well as an expression for dispersion of the error of an optimal system.

1/1

- 35 -

USSR

UDC 531.383+62.505

BLOKHIN, L. N. (Kiev Institute of Civil Aeronautical Engineers)

"Synthesis of Gyroscope Optimal Vibration Protection System Structure"

Kiev, Prikladnaya Mekhanika, Vol 7, No 10, Oct 71, pp 85-91

Abstract: Optimal transfer functions of two gyroscope vibration protection systems such as one dimensional system, different from the known one, because of the use of a refined expression of mathematical expectation of elastic debalance moment, and a three dimensional system synthesized under condition of equality of transfer functions along the main directions, are determined using the method of the theory of optimal filters. The solution of this problem is illustrated by two examples. It is shown, that such optimal systems which ensure the tendency toward zero of mathematical expectation of gyroscope drift in the presence of vibrations, can be built. The requirements for their determining parameters are outlined and discussed.

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Acc. Nr:  
**AP0044991**

Abstracting Service: *S/70*  
INTERNAT. AEROSPACE ABST.

Ref. Code:  
**UR 0198**

*B*

A70-23300 # Experimental study of the dynamic properties of gyroscopic devices (Eksperimental'noe izuchenie dinamicheskikh svoistv giropriborov). L. N. Blokhin (Kievskii Politekhnikheskii Institut, Kiev, Ukrainian SSR). *Prikladnaia Mekhanika*, vol. 6, Jan. 1970, p. 130-133. In Russian.

Use of vibration tests to determine the dynamic characteristics of a gyroscopic device constructed on the basis of a three-degrees-of-freedom astatic gyroscope. It is shown that a model of a translationally vibrating gyro system, with parameters similar to those of the investigated system, may be regarded as a linear, three-mass, undamped three-dimensional vibratory system. The directions of the principal vibrations of the masses of this system approximately coincide with the principal axes of the gyroscope.

A.B.K.

ALS

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1/1  
REEL/FRAME  
**19771887**

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--COMPENSATION OF SELECTIVE EXCITATION IN X RAY SPECTROGRAPHIC  
ANALYSIS BY A COMBINED ADDITIVE METHOD -U-  
AUTHOR-(04)-DUIMAKAYEV, SH.I., BLOKHIN, M.A., BELOV, V.T., TSOPOVA, L.N.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 164-6

DATE PUBLISHED-----70

B

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--X RAY SPECTROSCOPY, SPECTROGRAPHIC ANALYSIS, FLUORESCENCE  
SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1844

STEP NO--UR/0032/70/036/002/0164/0166

CIRC ACCESSION NO--AP0118808

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118808

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTENSITY DECREASE OF THE ANAL. LINE IN X RAY FLUORESCENCE SPECTROGRAPHY IS CAUSED BY ABSORPTION BY ALL COMPONENTS IN THE SAMPLE. EQUATIONS DESCRIBING THE DEPENDENCE OF THIS ABSORPTION ON CONCN. OF COMPONENTS ARE DERIVED AND DISCUSSED. A METHOD IS PROPOSED IN WHICH THE SAMPLE IS DILD. WITH A MATERIAL HAVING ABSORPTION AS SIMILAR AS POSSIBLE TO THE COMPONENT TO BE DETD. DILN. WITH AN EQUAL AMT. OF 66PERCENT NIO-34PERCENT FE SUB2 O SUB3 MIXT. IS SUED TO DET. 5-20PERCENT CO SUB2 O SUB3 IN THE PRESENCE OF 40-80PERCENT ZNO. THE STD. DEVIATION IS 3.4PERCENT, AND FOR THE METHOD OF SINGLE ADDN. IT IS 13.4PERCENT. FACILITY: ROSTOV. GOS. UNIV., ROSTOV, USSR.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--FEATURES OF METABOLIC PROCESSES IN CASES OF DEFORMING ARTHROSIS -U-

AUTHOR-(02)-BLCKHIN, N.N., SYROMYATNIKOVA, N.V.

COUNTRY OF INFO--USSR

SOURCE--ORTOP TRAVMATOL PROT 31(2): 53-56. 1970.

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--METABOLISM, SERUM PROTEIN, BIOCHEMISTRY, MUSCULOSKELETAL  
SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605015/F05 STEP NO--UR/9115/70/031/002/0053/0056

CIRC ACCESSION NO--APC140638

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0140638

ABSTRACT/EXTRACT--(U) GP-G- ABSTRACT. STUDIES WERE MADE OF 41 PATIENTS (20 MEN, 21 WOMEN) WITH DEFORMING ARTHROSIS OF THE KNEE JOINT OR PELVIC FEMUR JOINT. THE PATIENTS RANGE FROM 20 TO 40 YR IN AGE AND HAD SUFFERED FROM 2 TO 15 YR FROM THEIR CONDITION. THE STUDIES INCLUDED BLOOD SUGAR DETERMINATION, SERUM PROTEIN, ALIAC ACID, HAPTOGLOBIN, C REACTIVE PROTEIN, FIBRINOGEN, RESIDUAL NITROGEN, URIC ACID, ALKALINE PHOSPHATASE, AND ELECTROLYTES. IN CASES OF DEFORMING ARTHROSIS, LOCAL BIOCHEMICAL CHANGES ARE OBSERVED IN THE JOINT THAT ARE REFLECTED IN THE METABOLIC PROCESSES IN THE ENTIRE ORGANISM. THE IRRITATIVE FOCI WHICH CAUSE SHARP PAIN SENSATIONS LEAD TO A CHANGE IN THE METABOLIC PROCESS THROUGHOUT THE ENTIRE ORGANISM. EVEN SURGICAL INTERVENTION IN THE FORM OF JOINT RESECTION DOES NOT CAUSE BIOCHEMICAL REHABILITATION OF THE IMPAIRED METABOLIC PROCESSES. FACILITY: BIOCHEM. LAB., LENINGRAD INST. SURG. TUBERC., LENINGRAD, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--CURRENT PROBLEMS IN THEORETICAL AND CLINICAL ONCOLOGY -U-

AUTHOR--BLOKHIN, N.N. *B*

COUNTRY OF INFO--USSR

SOURCE--VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR, VOL 25, NO 6, 1970,  
PAGES 22-32

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL  
SCIENCES

TOPIC TAGS--ONCOLOGY, CANCER, MEDICAL RESEARCH FACILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0762

STEP NO--UR/0248/70/025/006/0022/0032

CIRC ACCESSION NO--AP0137815

UNCLASSIFIED



2/2 012

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137815

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADVANCES MADE BY THE SOVIET UNION WITH RESPECT TO ORGANIZATION OF CANCER CONTROL ARE WELL KNOWN: THE SPECIAL NETWORK OF ONCOLOGICAL INSTITUTIONS INCLUDING OVER 270 ONCOLOGICAL DISPENSARIES, ABOUT 3,000 ONCOLOGICAL DEPARTMENTS AND OFFICES, IS CLOSELY LINKED WITH SCIENTIFIC RESEARCH ONCOLOGICAL INSTITUTES FUNCTIONING IN THE VAST MAJORITY OF UNION REPUBLICS. A LEADING ORGANIZATIONAL ROLE IN THIS RESPECT IS PLAYED BY THE INSTITUTE OF ONCOLOGY IMEMI N. N. PETROV IN LENINGRAD, WHICH IS THE HEAD INSTITUTE OF THE USSR MINISTRY OF HEALTH, AND BY THE INSTITUTE OF EXPERIMENTAL AND CLINICAL ONCOLOGY USSR AMS IN MOSCOW, WHICH IS RESPONSIBLE FOR ORGANIZATION OF RESEARCH ON THE MAIN ONCOLOGICAL PROBLEMS IN THE NATION.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--THE FORMATION OF DOSE FIELDS ON PROTON BEAM OF ITEP ACCELERATOR -U-  
AUTHOR-(05)-BLOKHIN, S.I., GOLDIN, L.L., KLEYNBOK, YA.L., LOMANOV, M.F.,  
ONOSOVSKIY, K.K.  
COUNTRY OF INFO--USSR *B*  
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 5, PP 64-68  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--MEDICAL APPARATUS, PROTON ACCELERATOR, RADIATION  
DOSEAGE/(U)ITEP ACCELERATOR  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REFL/FRAME--1997/1958 STEP NO--UR/0241/70/015/005/0064/0068  
CIRC ACCESSION NO--AP0120601  
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120601

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DISCUSSES THE  
TECHNIQUE OF FORMATION OF DOSE FIELDS OF WIDE PROTON BEAMS ALONG THE  
AXIS OF THE BEAM AND IN TRANSVERSE DIRECTION, AS WELL AS THE  
CONSTRUCTIVE FEATURES SPECIFIC FOR THE EQUIPMENT USED FOR THESE  
PURPOSES. DOSE FIELDS FORMED ON A MIDEICO BIOLOGICAL PROTON BEAM OF  
ITEP ACCELERATOR. FACILITY: INSTITUT EKSPERIMENTAL'NOY I  
TEORETICHESKOY FIZIKI AN SSSR.

UNCLASSIFIED

EQUIPMENT  
Aeronautical

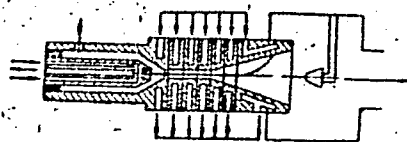
USSR

BLOKHIN, V. I., KONOTOP, V. A., FILATOV, A. S.

"High Temperature Supersonic Wind Tunnel with Arc Heating of Gas"

Otkrytiya Izobretmeniya Promyshlennyye Obratzsy Tovarnyye Znaki, No 5, 1972,  
Patent No 359565.

Translation: A high temperature supersonic wind tunnel with arc heating of gas, containing a working portion and attached stabilizing cooled multisection nozzle with centrally cooled cathode with an insert of refractory material in its subsonic portion and an anode in its supersonic portion, differing in that in order to increase the effectiveness of testing, the cathode is installed a distance of 1.5-2 diameters before the critical cross section of the nozzle.



1/1

Nuclear Physics

USSR

UDC: 53.07/.08+53.001.5

BLCKHIN, V. T., KATSAUROV, L. N., NECHAYEVA, L. P., RIKHTER, V. Ya.

"A Method of Measuring the Beam Position During Acceleration in a Sectoral Cyclotron"

Kratkiye soobshch. po fiz. (Brief Reports on Physics), 1971, No 8, pp 26-30  
(from RZh-Fizika, No 4, Apr 72, Abstract No 4A501)

Translation: A description is given of the method used on the three-section cyclotron model at the Physics Institute imeni P. N. Lebedev (Moscow) for determining the radial position (and orbit number) of the beam. The cyclotron uses pulse injection: the duration of the injecting beam is less, and the injection cycle repetition period several times greater, than the period of the accelerating voltage. For indication, the method used an electrostatic signal electrode and two opaque pickups which enable registration of the beam current and the visual observation of quartz plate fluorescence. By covering the beam with the opaque pickup and simultaneously using an oscilloscope to measure the time interval from the time of injection to the instant that the beam reaches the pickup, one can determine the radial position of the beam to within  $\pm 2$  mm when the orbit spacing is approximately 5 mm or more, including those cases in which the order of succession of the orbits is changed on certain azimuths because of radial fluctuations in the beam. V.N.K.

1/1

USSR

UDC 621.771.35.001.15

GOLUBCHIK, R. M., POLUKHIN, P. I., MILENNYY, K. F., and BLOKHIN, V. V.

"Theoretical Questions of the Kinematics of the Process of Cross Rolling"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 146-152

Translation: Metal forming during cross rolling is considered, formulas for the components of the power balance are derived, and an expression is obtained for calculating the efficiency in the roll barrels. Conditions of skidding and minimal efficiency are shown as a function of the parameters of the process. Five figures and seven bibliographic entries.

1/1

USSR

UDC 621.771.35.001.5

POLUKHIN, P. I., GOLUBCHIK, R. M., MILENNYY, K. F., and BLOKHIN, V. V.

"Metal Slip During Cross Rolling in Mills With Various Numbers of Working Rolls"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 142-146

Translation: The article makes a comparison of the kinematic parameters of cross rolling with various numbers of working rolls. The effectiveness of the particular rolling diagrams for different unit reductions is determined from a consideration of the efficiency in the roll barrel using experimental data. Four figures and six bibliographic entries.

1/1

- 20 -

1/2 014 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--EFFECT OF FORCES ON THE GUIDE TOOL DURING TRANSVERSE SPIRAL ROLLING  
-U-

AUTHOR--(03)-GOLUBCHIK, R.M., MILENNYY, K.F., BLOKHIN, V.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, DOKL. NAUCHNO-TEKHN. KONFERENTSIII PO ITOGAM  
REFERENCE--REFERATIVNYY ZHURNAL METALLURGIYA, NO 12, DEC 69, ABSTRACT NO  
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL ROLLING, ROLLING MILL, STRESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1982/1882

STEP NO--UR/0000/69/000.000/0027/0033

CIRC ACCESSION NO--AR0053028

UNCLASSIFIED



2/2 014

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AR0053028

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE CONTAINS A DISCUSSION OF A PROCEDURE FOR DETERMINING THE FORCES ON THE GUIDE TOOL WHEN REDUCING A CONTINUOUS ELASTIC BILLET. A DISC COMPRESSED BY TWO FORCES WITH RESPECT TO THE VERTICAL DIAMETER AND JAMMED BETWEEN TWO ABSOLUTELY RIGID SUPPORTS WITH RESPECT TO HORIZONTAL DIAMETER IS INVESTIGATED. A SCHEME IS PRESENTED FOR DETERMINING THE REACTIVE FORCES UNDER THE EFFECT OF TWO CONCENTRATED FORCES ON THE DISC AND THE LOAD DISTRIBUTION AND PROCEDURE FOR CALCULATING THE STRESSES OCCURRING IN THE DISC. EXPERIMENTAL DATA ON THE METAL PRESSURE ON THE ROLLS WERE OBTAINED. THESE DATA WERE COMPARED WITH THE CALCULATED DATA.

USSR

UDC 547.785.1.07

ROZIN, YU. A., BLOKHIN, V. YE., PUSHKAREVA, Z. V., and SUKHOVA, M. YE., The Ural Polytechnical Institute imeni S. M. Kirov, Sverdlovsk

"Hetarylimidazoles. I. The Synthesis of 2-Hetaryl-4,5-Diarylimidazoles"

Riga, Khimiya Geterotsiklicheskih Soyedineniy, No 5, 1972, pp 681-682

Abstract: It is recognized that the biimidazoles possess photochromic and thermochromic properties. However, as yet no data are available on the photo- and thermochromic properties of heterosubstituted biimidazoles. In order to make such studies possible, fifteen 2-hetaryl-4,5-diarylimidazoles -- which have not been previously described -- were synthesized by condensation of benzyl or p-tolyl solutions with heterocyclic aldehydes in acetic acid in the presence of ammonium acetate. The reactions were carried out as follows: to 20 ml of boiling glacial acetic acid containing 5 g of ammonium acetate was added 30 ml of a warm solution of acetic acid containing 0.01 mole of benzyl (or p-tolyl) and 0.01 mole of the appropriate aldehyde in a dropwise manner over a period of 2 hr. The reaction mixture was boiled for an additional 3 hr., following which it was cooled and poured on 250 g of ice with an excess of  $\text{NH}_4\text{OH}$ . The resultant precipitate was removed by filtration, washed with water, dried, and recrystallized. These preparations were then subjected to IR spectroscopic analyses.

1/1

Automotive and Transportation

USSR

UDC: 534.11:681.31+625.2:62-592.5

LAZARYAN, V. A., BLOKHIN, Ye. P., BELIK, L. V., Dnepropetrovsk

"Longitudinal Oscillations of Nonlinear One-Dimensional Systems with Perturbations Propagating along the Length"

Kiev, Prikladnaya Mekhanika, Vol 9, No 6, Jun 73, pp 89-94.

Abstract: A system of solids connected by deformable elements into a one-dimensional chain is studied. Perturbations propagate at constant velocity along the length of the chain. The dependence between force and deformations of connecting elements is assumed ambiguous; therefore, additional conditions must be set. A numerical solution of the problem is performed as applicable to braking of railroad trains. A computer is used to study the transient process as a function of the initial state of the system, the number of masses, and the clearances in the connecting elements. Comparison with experimental studies shows that the mathematical model reflects the processes occurring under actual conditions with sufficient accuracy.

1/1

BLOKHIN, YU. I.

INFORMATION  
SYSTEMS

GURIN

SO: JPRS 56047  
19 May 1972

UDC 075.4.004.14:002.0165.011.56

SUPERVISION OF ALL-UNION CLASSIFIERS OF TECHNICAL-ECONOMIC INFORMATION

[Article by Yu. I. Blokhin, L. B. Venechovskiy, Candidates of Technical Sciences, VILKAT'nikov, Stankivsky I. Koshchev, Russian, No 3, 1972, pp 20-23]

An important problem occurring during the creation of a United System of Classification and Coding is the organization of the system for supervision of classifiers of technical-economic information in the country.

The basic goal of creating such a system is operative supplying of automatic control systems on all levels and also the enterprises and organizations which will refer to the introduction system and be serviced by it with complete and reliable information contained in the classifiers. Thus, the classifier supervision system is a complex acute information system unique with respect to scale and problems solved.

The various services in the supervision system will solve the following basic problems:

Creation of information files on the basis of the initial version of the classifier;

Assignment of codes to new objects and groupings;

Permanent introduction of changes into the classifier on the appearance of new objects or groupings;

Introduction of changes in the classifier on changing the classifier attributes, that is, on changing the nature of the solved problem;

Informing the consumers about the changes originating in the classifier (as changes are introduced or periodically);

Information servicing of the consumers by demand on the basis of the existing classifiers;

Continuous improvement of each classifier and solution of problems of best coordination of them;

- 42 -

USSR

UDC: 621.396.69:621.316.8

BLOKHIN, Yu. I., KEDROV, Ye. M., BERUCHKO, N. I.

"Working Capacity of Thin-Film Resistors in the Pulse Mode With a Pulse Duration of More Than 500  $\mu$ sec"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 1 (18), pp 67-71 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V337)

Translation: The authors describe the results of determination of the working capacity of thin-film resistors operating in the pulse mode with a pulse duration from 500  $\mu$ sec to 20 msec. A method is proposed for calculating the maximum permissible amplitudes of pulses and overloads for bulk thin-film resistors for various average power levels and the above-mentioned pulse duration range. Bibliography of 3 titles. Ye. M.

1/1

- 120 -

USSR

UDC 51:621:391

BLOKHINA, G. N.

"The Predicate Description of Post Classes"

Diskretn. Analiz [Discrete Analysis -- Collection of Works], No 16, Novosibirsk, 1970, pp 16-29 (Translated from Referativnyy Zhurnal Kibernetika, No 3, 1971, Abstract No 3 V354 by the author).

Translation: The problem of description of Post Classes (RZhMat, 1968, 1 V15) of logical algebra functions is solved used predicates. It is demonstrated that all classes except  $O_2$ ,  $O_3$ ,  $O_7$  and  $F_s^\infty$ ,  $s=1,2, \dots, 8$ , are classes of retention of predicates, i. e., are predicate classes. The concept of dimensionality of the Post Predicate Class is introduced, referring to the least number of variables in a predicate, the retention class of which is the class being studied. The dimensionalities of all predicate classes are calculated and the corresponding predicates are presented. It is found that the dimensionalities of all classes differing from  $F_s^\mu$ ,  $\mu=2,3,\dots$ , are limited by the constant five; dimensionalities of classes  $F_4^\mu$ ,  $F_8^\mu$  are equal to  $\mu$ , of classes  $F_1^\mu$ ,  $F_5^\mu$ ,  $F_3^\mu$ ,  $F_7^\mu$ , --  $\mu+1$ , of classes  $F_2^\mu$  and  $F_6^\mu$  --  $\mu+2$ .

1/1

- 29 -

USSR

UDC 576.851.589:615.779

RAUTENSHTEYN, Ya. I., KRUKOVSKAYA, G. Ye., ~~BLOKHINA, T. P.~~, and SOLOV'YEVA, N. Ya., Institute of Microbiology, Academy of Sciences USSR, Moscow

"The Production of Virulent Mutants of Temperate Phages of Lysogenic Cultures of the *Bacillus thuringiensis* Group by the Antibiotic Vancomycin"

Moscow, *Mikrobiologiya*, Vol 41, No 1, Jan/Feb 72, pp 177-178

Abstract: Fifty-one strains of the following varieties of *Bacillus thuringiensis* were tested: var. *galleriae*, *dendrolimus*, *caucasicus*, *alesti*, and *Bac. thuringiensis*, I serotype. *Bacillus cereus*, *Bac. insectus*, and a pigmented strain similar to *Bac. insectus* were tested simultaneously. Virulent mutants were produced from the fresh growth of all 16 strains of *Bac. thuringiensis* var. *galleriae* cultured on meat-peptone agar to which two drops of vancomycin were added in a concentration of 100 g/ml. Some of the strains were affected by smaller antibiotic concentrations. The presence of a virulent phage was confirmed by its isolation and by testing its multiplication in the homologous bacterial culture from which it was isolated. Vancomycin failed to produce similar results in other subspecies tested.

1/1

USSR

UDC 576.8.095.323.7.095.12

BLOKHINA, T. P., Institute of Microbiology, Academy of Sciences USSR

"Fermentation of Maltose, Sucrose, Lactose, and Raffinose by Pressure-Resistant Bacteria at Elevated Hydrostatic Pressures"

Moscow, Mikrobiologiya, Vol 40, No 6, Nov/Dec 71, pp 1015-1020

Abstract: The fermentation of maltose, sucrose, lactose, and raffinose by the pressure-resistant strains Bact. candidans 8060, Bact. nitrificans 8013, and Pseudomonas sp. 8113 at elevated hydrostatic pressures ( $\leq 500$  atm) was studied. With increases in pressure of the order of 200-300 atm, the micro-organisms in question retained the initial capacity to increase their biomass, while the degree of utilization of sugar decreased. This may be regarded as an adaptation reaction of pressure-resistant strains which enables them to survive at great depths. The characteristic involved could be ascribed to activation of oxidative phosphorylation at 200-350 atm. At still higher pressures the adaptation was inadequate; at pressures approaching 5-- atm, the accumulation of biomass dropped abruptly, notwithstanding a considerable increase in sugar utilization. The inhibiting effect of high pressures could be ascribed to the interference of these pressures with the formation of enzyme-substrate complexes involving an increase in volume. At elevated pressures, fermentation of maltose and sucrose proceeded in the same manner as that of glucose; maltase and sucrase were not inactivated.

1/2



USSR

BLOKHINA, T. P., Mikrobiologiya, Vol 40, No 6, Nov/Dec 71, pp 1015-1020

The fermentation of lactose was inhibited at lower pressures than that of maltose or sucrose, because the enzyme systems effective in the fermentation of this sugar (specifically those involving the action of beta-galactosidase) were more sensitive to high pressures. Raffinose behaved similarly to lactose, inactivation of alpha-galactosidase can be assumed in this case. Fermentation of the carbohydrates at elevated hydrostatic pressures was accompanied by an increase in the amounts of volatile acids and alcohol that formed and a decrease in the amount of CO<sub>2</sub>.

2/2

- 31 -

USSR

UDC 576.8.095.[12+3]

BLOKHINA, T. P., Institute of Microbiology, Academy of Sciences USSR

"Fermentation of Glucose and Galactose by Temperature-Tolerant Bacteria Under High Hydrostatic Pressures"

Moscow, Mikrobiologiya, No 5, 1971, pp 838-843

Abstract: *Bacterium candicans* strain 8060, *Bacterium nitrificans* strain 8013, and *Pseudomonas* sp. strain 8113 grown on media containing glucose or galactose under pressures of 1, 100, 200, 350, and 500 atm increased their utilization of sugar with increasing pressure except *Pseudomonas* sp. strain 8113, which utilized less galactose as the pressure was raised. The last strain also proved to be the most capable of reproducing under high pressures (judging from the increase in biomass). This culture is evidently barophilic while the other two are temperature-tolerant. However, at the stage of most intensive growth, all utilized less carbon at 1 atm than at the higher pressures. Regardless of the monosaccharide used in the medium, there were quantitative and qualitative changes in the metabolic products with increasing pressure. Starting at 100 atm the volatile acids and alcohol increased while the amount of carbon dioxide decreased.

1/1

USSR

UDC 621.785.784:669.721

TIKHOVA, N. M., ~~BLOKHINA, V. A.~~, ANTIPOVA, A. P., VASIL'YEVA, T. P., SOLOV'YEVA, G. G., All-Union Scientific Research Institute of Aviation Materials

"Effect of Prolonged Heating on Properties of the ML9 and ML10 Magnesium Alloys"

Moscow, Metallovedeniye, No 10, 1971, pp 73-76

Abstract: A study was made of the effect of prolonged heating, 0.5-30,000 hours, at 125-300°C, on the microstructure and mechanical properties of ML9 and ML10 heat-resistant cast magnesium alloys, developed on the base of the system Mg-Nd-Zr for continuous working at up to 250 and 300°C, respectively. The chemical compositions of the ML9 and ML10 alloys, their industrial heat treatment, and their mechanical properties in comparison with the widely used ML5 alloy are shown. The change of mechanical properties at temperatures up to 300°C is discussed. The structure and mechanical properties of the ML10 alloy, after heating at 200°C over periods of 1000 and 2500 hours are the same.

1/2

USSR

TIKHOVA, N. M., et al, Metallovedeniye, No 10, 1971, pp 73-76

At higher temperatures (2500C), an intensive decomposition of grains of the solid solution occurs. A microstructural change of the ML9 alloy after heating over a period of 1000 hours at 2000C and 10 hours at 2500C was not observed. Heating at 3000C changed its microstructure substantially. 3 illustrations, 6 tables, 1 bibliographic reference

2/2

- 23 -

USSR

UDC 669.721:669.794:539.434

TIKHOVA, N. M., SOLOV'YEVA, G. G., BLOKHINA, V. A., ANTIPOVA, A. P., VASIL'YEVA, T. P.

"Problem of the Theory of Alloying Magnesium with Rare Earth Metals and Yttrium"

V sb. Redkozemel'n. met i splyavy (Rare Earth Metals and Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 99-103 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 41656)

Translation: A study was made of the causes of the positive effect of rare earth metals and yttrium on the high-temperature strength of Mg in comparison with alloys of the Mg-Al system. A photograph of the microstructures of the alloys as a function of composition and heat treatment conditions is included, and tables are given for mechanical properties, known alloys, and a new experimental alloy with yttrium. 2 illustrations and 2 tables.

1/1

- 24 -

1/2 029 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--EFFECT OF IONIZING RADIATION ON C PRIME14 AMINO ACIDS INCORPORATION  
INTO NUCLEAR PROTEINS AND DNP OF RAT TISSUE CELLS -U-  
AUTHOR-(03)-NIKOLSKIY, A.V., BLOKHINA, V.D., ROMANTSEV, YE.F.  
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2/2 029

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120958

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. C PRIME14 AMINO ACIDS INCORPORATION IN VITRO INTO TOTAL NUCLEAR PROTEINS AND DNP OF LIVER, SPLEEN AND THYMUS OF RATS IRRADIATED AT A DOSE 1000 R HAS BEEN STUDIED. PROTEIN SYNTHETIZING SYSTEM OF DNP WAS THE NUCLEAR RESIDUE WHICH DID NOT CONTAIN GLOBULINS. 1 AND 24 HOURS AFTER THE IRRADIATION THE PRONOUNCED INHIBITION OF C PRIME14 AMINO ACIDS INCORPORATION INTO NUCLEI AND DNP OF THYMUS CELLS WAS NOTED. 24 H AFTER THE IRRADIATION THE SAME PICTURE TOOK PLACE IN THE SPLEEN. ON THE OTHER HAND 1 H AFTER THE IRRADIATION EITHER THE STIMULATION OR THE INHIBITION DEPENDING UPON THE SEASON WAS SHOWN. IN THE LIVER AT ALL TIME INTERVALS STUDIED SOME ACTIVATION IN LABEL INCORPORATION HAS BEEN OBSERVED.

UNCLASSIFIED

USSR

UDC 541.8:546.791.6'131:54-145.4:546.212

VDOVENKO, V. M., BLOKHINA, V. K., and SUGLOBOVA, I. G.

"Mutual Solubility in the System Uranyl Chloride--Water--Diethyl Ether"

Leningrad, Radiokhimiya, Vol 14, No 4, 1972, pp 563-566

Abstract: Uranyl chloride is poorly extracted by ethyl ether from aqueous solutions. Only when the concentration of  $\text{UO}_2\text{Cl}_2$  reaches the level of 55-60%, there occurs a noticeable transfer of the salt into the ether. With  $\text{UO}_2(\text{NO}_3)_2$  the salt extraction into the ether phase begins with a 30-35% concentration. This lower tendency of uranyl chloride towards extraction with ether is due to a higher concentration of negative charges on the chloride atoms, which results in strong hydration of the complex with water molecules. The solubility of uranyl chloride in ether reaches a maximum when water molecules can be found in the coordination sphere of uranium. The transition of the salt into ether is due to the formation of hydrogen bonds between the water of hydration and the ether molecules. Uranyl chloride typically forms trisolvates: two water molecules with one ether molecule, or one water to two ether molecules.

1/1



USSR

UDC 621.384.6+539.12

BLOKHINTSEV, D. I., YEFREMOV, A. V., and MURADYAN, R. M., Joint Nuclear Research Institute, Dubna

"The Planning of New Accelerators and Problems in Modern Elementary Particle Physics"

Moscow, Uspekhi Fizicheskikh Nauk, Vol 109, vyp 2, Feb 73, pp 259-268

Abstract: The article is based on a note commissioned by the Nuclear Physics Department of the Academy of Sciences USSR and compiled by a group of theoretical physicists consisting of D. I. BLOKHINTSEV, S. S. GERSHTEYN, G. V. YEFIMOV, A. V. YEFREMOV, V. G. KADYSHEVSKIY, A. A. KOMAR, V. A. MATVEYEV, V. A. MESHCHERYAKOV, R. M. MURADYAN, V. I. OGIYEVETSKIY, and A. T. FILIPPOV and delivered at an expanded session of the department.

The article begins with a brief survey of the characteristics of accelerators now in operation or in the planning stage and their updating. The 76-Gev proton accelerator in Serpukhov is to be updated by changing to superconducting magnets, which will permit an energy of the order of 1000 Gev.

1/3

- 77 -

USSR

BLOKHINTSEV, D. I., et al., Uspekhi Fizicheskikh Nauk, Vol 109, vyp 2, Feb 73, pp 259-268

There are plans for the creation of 2X23-Gev proton-antiproton counterbeams in Novosibirsk. As for electron acceleration, a 2X700-Mev beam is in operation in Novosibirsk.

The main part of the article deals with "the most general and, at the same time, fundamental problems in elementary particle physics." These include: a) the search for an "elementary length"; b) the search for quarks, Schwinger's dions, intermediate bosons, Dirac's monopole, and heavy leptons; c) strong interactions (throwing light on the mechanism for the interaction of hadrons and their mass spectrum); d) electromagnetic interactions (the search for deviation from quantum electrodynamics and the problem of the difference between a mu-meson and electron, as well as the question of how universal self-similarity or scale invariance is); e) weak interactions (the problem of their dynamic nature).

2/3

USSR

BLOKHINTSEV, D. I., et al., Uspekhi Fizicheskikh Nauk, Vol 109, vyp 2, Feb 73, pp 259-268

The article concludes by discussing promising directions for accelerator development: a) the updating of existing machines with a sharp increase in the intensity of the primary beam and, hence, secondary beams or with polarized particle acceleration; b) the creation of proton accelerators (based on superconducting magnets) with a proton energy of  $E > 1000$  GeV ( $W > 40$  GeV), with subsequent organization of counterbeams with a center-of-mass energy  $W \gg 300$  GeV; c) research on collective methods of acceleration to superhigh energies of many thousands of gigaelectronvolts, especially the Veksler-Sarantsev method, for the creation of extremely high-energy hadron and lepton beams; d) the creation of  $e\bar{e}$ ,  $\mu\bar{\mu}$ , and  $p\bar{p}$  counterbeams with energy  $W$  as close to 300 GeV as possible.

The authors hope that they fully reflected the work of the entire group and thank the participants for their comments.

3/3

- 78 -

USSR

BLOKHINTSEV, D. I., Joint Institute of Nuclear Research

"Stochastic Spaces"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, Vol. 11, No. 1, Apr 72,  
pp 3-8

Abstract: Phase fluctuations in a wave propagating in a stochastically homogeneous medium, especially in a physical vacuum, are calculated. The study is a development of a method for calculating the distribution of waves in a medium with random characteristics that was introduced by the author in 1966. The notion of a stochastic space is introduced and it is shown that it is necessary to introduce a cutoff form-factor in the relativistic case to obtain convergent results. A more improved method of integrating the equations for a random phase is given and the averaging over phases of the random field is improved. Applications to quantum field theory are discussed and it is shown how the method developed here can be used to calculate wave phase fluctuations caused by null vibrations of a free gravitational field.

1/1

- 92 -